

A quadrature demodulator 408' and a quadrature modulator 908' convert a reception intermediate frequency signal 151 into reception baseband signals 157 and 158, and also convert transmission baseband signals 657 and 658 into a transmission intermediate frequency signal 651, respectively. While local oscillation signals having frequencies suitable for the respective bands are outputted from a commonly used local oscillator 111, such a local oscillation signal obtained by shifting a phase thereof $\pi/2$ by a phase shifter 412 is supplied to one mixer of quadrature mixers 109 and 609, and such a signal obtained by inverting, or not inverting the plurality of the local oscillation signal by an exclusive OR gate circuit 413 in response to a band switching signal 153 is supplied to the other mixer of quadrature mixers 110 and 610.